**Database Programming Project Description: Online Hotels**

**Introduction of the Project:**

* **Group Assignment**: This project is a collaborative effort where each group selects a topic of their choice.
* **Documentation Submission**: Each group member must submit the project documentation on the eLearning platform individually before starting the implementation phase (prior to the midterm exam).
* **GitHub Usage**: Every group member should use their GitHub account for the project implementation.
* **Group Discussions**: All group members are required to discuss the documentation and implementation together before the final exam.
* **Project Worth**: The project is worth 15 marks, distributed as follows:
  + Documentation: 5 marks (group work)
  + Implementation: 5 marks (group work)
  + Discussion and Presentation: 5 marks

**Project Parts:**

**Part A: Documentation (Due date: 27/4/2024)**

Fill the Project template provided on eLearning with the following components:

1. **Problem Statement**:
   * Clearly define the problem your project aims to solve. Describe the context and the necessity for a solution.
2. **Project Plan and Schedule**:
   * Outline the steps and timeline for completing the project. Include key milestones and deadlines.
3. **System Analysis and Design**:
   * Conduct a thorough analysis of the system requirements.
   * Design the database schema, including tables, relationships, and constraints.

**Example Topic: Online Hotels**

**Problem Statement:**

The aim of this project is to develop a database system for managing hotel room bookings, customer management, and service tracking. This system will streamline the booking process, enhance customer experience, and improve overall hotel management efficiency.

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**Project Plan and Schedule:**

* **Week 1-2**: Requirement gathering and analysis
* **Week 3-4**: Database design (ERD creation, schema design)
* **Week 5-6**: Implementation (creating tables, relationships, constraints)
* **Week 7**: Testing (inserting sample data, querying)
* **Week 8**: Final review and documentation completion

**System Analysis and Design:**

* **Entities and Relationships**:
  + **Hotel**: HotelID, Name, Location, ContactInfo
  + **Room**: RoomID, HotelID, RoomNumber, Type, Price, Status
  + **Customer**: CustomerID, Name, Email, PhoneNumber
  + **Booking**: BookingID, CustomerID, HotelID, RoomID, CheckInDate, CheckOutDate, TotalAmount
  + **Service**: ServiceID, HotelID, ServiceName, Description, Price
  + **ServiceRequest**: ServiceRequestID, BookingID, ServiceID, RequestDate, Quantity
* **ERD (Entity-Relationship Diagram)**:
  + **Hotel**: Represents the hotels in the system. Each hotel has unique attributes such as HotelID, Name, Location, and ContactInfo.
  + **Room**: Represents the rooms in each hotel. Each room has attributes such as RoomID, HotelID, RoomNumber, Type, Price, and Status.
  + **Customer**: Represents the customers. Attributes include CustomerID, Name, Email, and PhoneNumber.
  + **Booking**: Represents the bookings made by customers. Attributes include BookingID, CustomerID, HotelID, RoomID, CheckInDate, CheckOutDate, and TotalAmount.
  + **Service**: Represents additional services offered by the hotel. Attributes include ServiceID, HotelID, ServiceName, Description, and Price.
  + **ServiceRequest**: Represents service requests made by customers during their stay. Attributes include ServiceRequestID, BookingID, ServiceID, RequestDate, and Quantity.
* **ERD Diagram**:
  + A visual representation showing the relationships between these entities. Each entity will be connected to others through their unique identifiers (e.g., HotelID in Hotel and Room, CustomerID in Customer and Booking).

**Example ERD (Entity-Relationship Diagram):**

Hotel (HotelID, Name, Location, ContactInfo)

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|--< Room (RoomID, HotelID, RoomNumber, Type, Price, Status)

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|--< Booking (BookingID, CustomerID, HotelID, RoomID, CheckInDate, CheckOutDate, TotalAmount)

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|--< ServiceRequest (ServiceRequestID, BookingID, ServiceID, RequestDate, Quantity)

Customer (CustomerID, Name, Email, PhoneNumber)

Service (ServiceID, HotelID, ServiceName, Description, Price)

This detailed example for the "Online Hotels" topic provides a structured framework for completing the documentation part of your project. You can adjust and expand upon this base according to your group's specific requirements and insights.